

## Teaching taxonomy

Pisupati<sup>1</sup> has expressed his concern about taxonomy being a dying subject and taxonomists as endangered species, as a result of taxonomy teaching being boring and lack of employment opportunities. Though the latter is of concern to be addressed by the policy makers, we would like to share our experience about the former, i.e. teaching taxonomy. During the last three years, at the Department of Entomology, University of Agricultural Sciences, Bengaluru, we have organized 20 training programmes on taxonomy. These have been conducted under the 'Capacity building in Taxonomy of Insects and Mites' programme supported by Indian Council of Agricultural Research (ICAR), New Delhi, under its Niche Area of Excellence programme. In all agricultural universities, Systematic Entomology is a core course for students of M Sc (Agricultural Entomology) and in other universities. Animal taxonomy is one of the main papers for students of M Sc in zoology. However, there are not many trained teachers to offer this course. Realizing this, ICAR has supported this programme to train teachers, research workers, PG students and others in taxonomy of insects and mites. We have conducted 6 training programmes of 21 days duration on identification of important families of insects and mites. The other programmes were of shorter duration on specific groups like ants,

termites, pollinators, etc. for specialists or at a basic level for hobbyists, nature enthusiasts, school teachers, children, etc. To make these courses interesting, we have adopted a hands-on training mode. Keys and descriptions in textbooks do not hold the interest of trainees and they have to struggle to understand the terminologies and morphological features. Further, giving description and characters of the family to be identified and getting them to see the characters in the specimens will not help them to appreciate the features and study them closely. To help the trainees better appreciate the features and to keep their interest we have developed pictorial keys, which are user-friendly. These keys help them identify the insects or mites up to family level and also help them identify unknown specimens by following a specified route in the key guided purely by the characters in the specimen. This makes the exercise a riddle-solving experience and they experience the thrill of solving it on their own. The excitement and satisfaction when their identification is proved correct is evident. Most of the trainees mentioned that this was a unique experience which they never got from the courses in their colleges. Our experience is that many youngsters are interested in taxonomy, and there is a need to guide them and keep their interest. The few experts working on taxonomy should

devote some time for hand-holding and mentoring. We believe our effort for insects and mites will bear fruit and similar efforts may have to be initiated for several other groups of living organisms. Indeed without this effort (according to Pisupati, we may require 400 years to complete the inventory of Eukaryotes) we will never be able to name all the organisms with which we share this planet and might lose several of them without even giving them names, let alone understand their role on Earth. As a part of our effort to contribute to citizens' science, we are conducting training programmes for school teachers, school children, IT professionals, home makers, artists and others interested in nature. We are thrilled by their enthusiasm, and as mentioned by Pisupati<sup>1</sup> there is a good scope to harvest their energies and enthuse parataxonomists in preparing inventories.

1. Pisupati, B., *Curr. Sci.*, 2015, **108**(12), 2149-2150.

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## Ph D thesis title

The title of a Ph D thesis approved by a competent body of any University is sacrosanct to the University examination section. The candidate needs to use the same title at the time of submission. Change in the title of a thesis is a tedious and complex procedure, which leads to considerable delays in permitting the candidate to submit the thesis for evaluation. Keeping this in mind one must be careful while giving a title for registration. We have noticed that Ph D students studying biotechnology, pharmaceutical science and different applied fields related to botany, often do not consult

taxonomists and give adequate attention to identification and naming of plants at the time of registration for Ph D. At the fag end of their work, some of them realize the importance of properly naming the plants following taxonomic procedures and want quick certification from BSI as the date of submission of thesis is close. To them, identification and naming of a plant may be a simple process, but to a taxonomist it is a dedicated scientific activity which needs more time. If it so happens that a taxonomist finds out that the name a candidate has used for a plant is wrong, then the scientific name

of the plant in the thesis title needs to be changed, which is not easy. In order to avoid these difficulties, students pursuing Ph D should pay adequate attention to their title of the thesis and obtain authentication certificate for the name of the plant they are studying before proceeding with their work.

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